



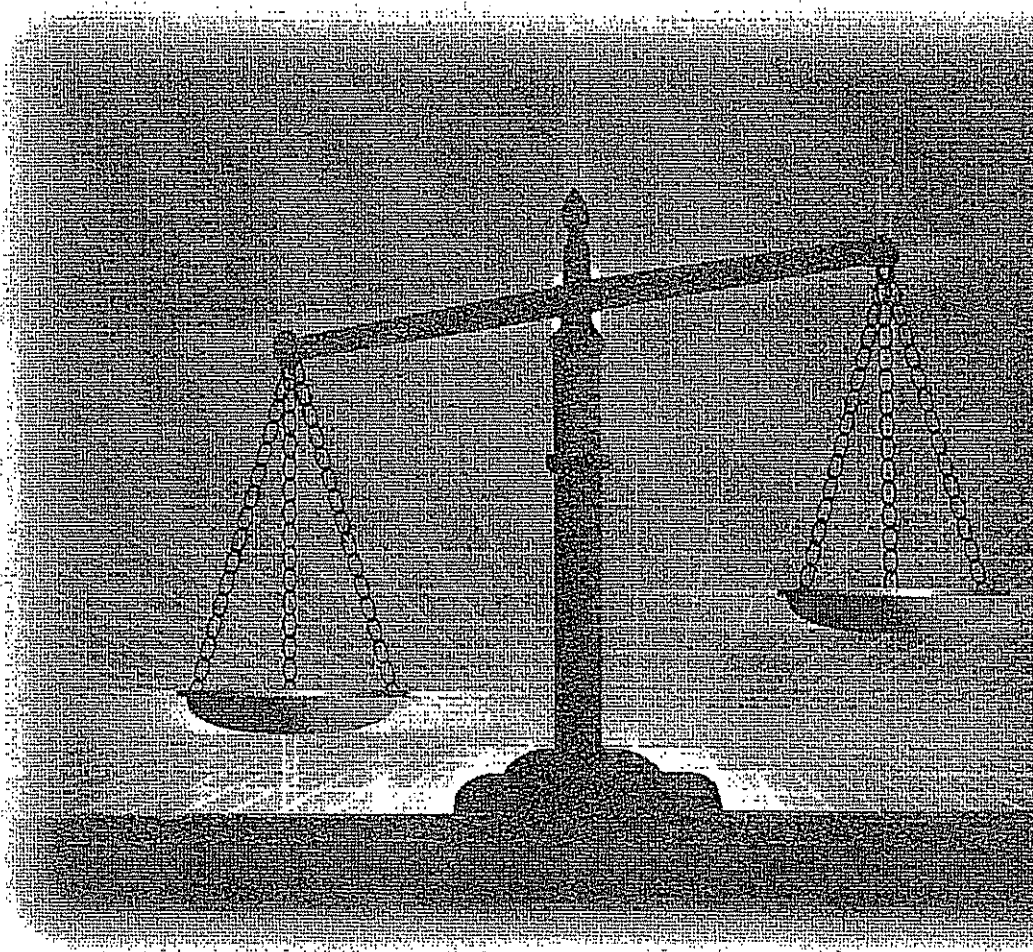
United States
Department of
Commerce

Technology
Administration

National
Institute of
Standards and
Technology

SPECIFICATIONS, TOLERANCES, AND OTHER TECHNICAL REQUIREMENTS FOR WEIGHING AND MEASURING DEVICES

as adopted by
the 88th
National
Conference on
Weights and
Measures 2003



NIST Handbook **44**
2004

Sec. 5.53. Odometers

A. Application

A.1. - This code applies to odometers that are used or are to be used to determine the charges for rent or hire of passenger vehicles and trucks and buses. (When official examinations are undertaken on odometers that form the basis for the payment of fees or taxes to, or the preparation of reports for, governmental agencies, and in similar cases, the requirements of this code shall be applied insofar as they are applicable and appropriate to the conditions of such special uses.)

(Amended 1977)

A.2. - This code does not apply to taximeters (for which see Sec. 5.54; Code for Taximeters).

(Amended 1977)

A.3. - See also Sec. 1.10; General Code requirements.

S. Specifications

S.1. Design of Indicating Elements.

S.1.1. General. - The primary indicating element of an odometer may be:

- (a) the distance-traveled portion of the "speedometer" assembly of a motor vehicle;
- (b) a special cable-driven distance-indicating device; or
- (c) a hub odometer attached to the hub of a wheel on a motor vehicle.

(Amended 1977)

S.1.2. Units. - An odometer shall indicate in terms of miles or kilometers.

(Amended 1977)

S.1.3. Minimum Indicated Value. - The value of the interval of indicated distance shall be:

- (a) for odometers indicating in kilometers, 0.1 kilometer; or
- (b) for odometers indicating in miles, 0.1 mile.

(Amended 1977)

S.1.4. Advancement of Indicating Elements. - The most sensitive indicating elements of an odometer may advance continuously or intermittently; all other elements shall advance intermittently. Except when the indications are being returned to zero, the indications of an installed odometer shall be susceptible to advancement only by the rotation of the vehicle wheel or wheels.

(Amended 1977)

S.1.5. Readability. - Distance figures and their background shall be of sharply contrasting colors. Figures indicating tenth units shall be differentiated from other figures with different colors, or with a decimal point, or by other equally effective means. Except during the period of advance of any decade to the next higher indication, only one figure in each decade shall be exposed to view. Any protective covering intended to be transparent shall be in such condition that it can be made transparent by ordinary cleaning of its exposed surface.

(Amended 1977)

S.1.6. Digital Indications and Representation. - Digital indicating odometers (discontinuous registration) shall "round off" indications to the nearest minimum division or truncate indications to the lower minimum division.

(Added 1990)

N. Notes

N.1. Testing Procedures.

N.1.1. Test Methods. - To determine compliance with distance tolerances, a distance test of an odometer shall be conducted using one or more of the following test methods:

- (a) **Road Test.** - A road test consists of driving the vehicle over a precisely measured road course.
- (b) **Fifth-Wheel Test.** - A fifth-wheel test consists of driving the vehicle over any reasonable road course and determining the distance actually traveled through the use of a mechanism known as a "fifth wheel" that is attached to the vehicle and that independently measures and indicates the distance.
- (c) **Simulated-Road Test.** - A simulated road test consists of determining the distance traveled by use of a roller device, or by computation from rolling circumference and wheel-turn data.

(Amended 1977)

N.1.2. Test Runs. - Not less than two test runs shall be conducted. Acceleration and deceleration shall be carefully controlled to avoid spinning or skidding the wheels.

(Amended 1977)

N.1.2.1. For Devices Indicating in Miles. - The test runs shall be 2 miles in length, shall start from, and finish at, a dead stop with a minimum of 80 % of the run between 30 miles per hour and 45 miles per hour.

(Added 1977)

N.1.2.2. For Devices Indicating in Kilometers. - The test runs shall be 3 kilometers in length, shall start from, and finish at, a dead stop with a minimum of 80 % of the run between 50 kilometers per hour and 75 kilometers per hour.

(Added 1977)

N.1.3. Test Conditions.

N.1.3.1. Tire Stabilization. - Road tests or fifth-wheel tests shall be preceded by a run of at least 8 kilometers or 5 miles, for the purpose of stabilizing tire pressures. Simulated road tests on a roller device shall be made at stable tire pressures

(Amended 1977)

N.1.3.2. Tire Pressure. - At the completion of the test run or runs, the tires of the vehicle under test shall be checked to determine that the tire pressure is that operating tire pressure posted in the vehicle. If not, the tire pressure should be adjusted to the posted tire pressure and further tests may be conducted to determine the operating characteristics of the odometer.

(Amended 1977)

N.1.3.3. Vehicle Loading.

(a) **Passenger Load.** - During the distance test of an odometer, the vehicle may carry two persons

(b) **Truck Cargo Load.** - Truck odometers shall be tested by one of the following methods:

(1) the truck is loaded with one-half of the maximum cargo load; or

(2) unloaded if unloaded test tolerances are applied.

(Amended 1977 and 1987)

T. Tolerances

T.1. To Underregistration and to Overregistration. - The tolerances hereinafter prescribed shall be applied to errors of underregistration and errors of overregistration.

T.2. Tolerance Values. - Except for unloaded trucks, maintenance and acceptance tolerances on odometers shall be 4 % of the interval under test.

(Amended 1977 and 1987)

T.2.1. Tolerances for Unloaded Trucks. - Maintenance and acceptance tolerances on truck odometers shall be 5 % for underregistration and 3 % for overregistration of the interval under test.

(Added 1987)

UR. User Requirements

UR.1. Inflation of Vehicle Tires. - The operational tire pressure of passenger vehicle and truck tires shall be posted in the vehicle and tires shall be maintained at the posted pressure.

(Amended 1977)